REMARKS

The Office Action mailed June 27, 2001, has been received and reviewed. Claims 1, 6, 10, 12 and 17 are amended. Claims 1-20 are pending in this application. Reconsideration and withdrawal of the rejections are respectfully requested.

Rejections Under 35 U.S.C. §102(b)

Claims 1, 12, 13 and 16

Claims 1, 12, 13 and 16 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,756,879 to Yamagishi *et al.* (hereinafter "Yamagishi").

Claim 1

Applicant respectfully traverses the rejection of claim 1 and respectfully submits that Yamagishi fails to anticipate each and every element set forth in claim 1. For example, there is no teaching in Yamagishi, among other things, of a method of detecting a gas phase material by exposing a detection surface to the gas phase material where an electrically conductive film forms on the detection surface between the first and second electrodes, as recited in claim 1. In contrast, Yamagishi discloses a conductive polymer covering a pair of electrodes, where the conductive polymer has an affinity for target vapors (Col. 4, lines 1-16) that change the polymer's conductivity if the target volatile compound is present in the air at detectable levels (Col. 6, lines 35-38). Yamagishi, however, does not teach that a conductive film is formed on a detection surface exposed to a gas phase material, as recited in claim 1. Thus, Yamagishi fails to anticipate claim 1.

Claim 12

Applicant has amended claim 12 to better describe the recited subject matter. Insofar as the rejection is applied to claim 12, Applicant respectfully traverses the rejection of claim 12, as follows.

Applicant respectfully submits Yamagishi fails to anticipate the subject matter of claim

12, as Yamagishi fails to teach each and every element set forth in claim 12. For example, there is no teaching in Yamagishi, among other things, of a sensor for detecting a gas phase material in an environment that includes a detector operatively connected to the first and second electrodes, where the detector generates an alert when a film of the gas phase material in the environment forms on the detection surface, as recited in claim 12. In contrast, Yamagishi discloses a conductive polymer covering a pair of electrodes, where the conductive polymer has an affinity for target vapors (Col. 4, lines 1-16) that change the polymer's conductivity if the target volatile compound is present in the air at detectable levels (Col. 6, lines 35-38). Yamagishi, however, does not teach or suggest that a film is formed on a detection surface exposed to a gas phase material, as recited in claim 12. Thus, Yamagishi fails to anticipate claim 12.

Claim 13 and 16

Applicant submits that claims 13 and 16, being dependent on independent claim 12 that is otherwise allowable for reasons set forth herein, are likewise allowable over the cited art.

Reconsideration and withdrawal of the rejection of claims 1, 12, 13 and 16 under 35 U.S.C. §102(b) as being anticipated by Yamagishi is, accordingly, respectfully requested.

Claims 1, 6, 9, 10, 12, 15-17, 19 and 20

Claims 1, 6, 9, 10, 12, 15-17, 19 and 20 were rejected under 35 U.S.C. §102(b) as being anticipated by GB 1,151,482 to Hacman (hereinafter "Hacman") or FR 1576658 to N.V. Philips (hereinafter "Philips").

Claims 1, 6 and 10

Applicant has amended claims 1, 6 and 10 to better describe the recited subject matter. Insofar as the rejection is applied to claims 1, 6 and 10, Applicant respectfully traverses the rejection of the claims, as follows.

Applicant respectfully submits that Hacman and Philips fail to anticipate the subject

matter of claims 1, 6 and 10, because the cited documents do not disclose each and every element set forth in the claims. For example, there is no teaching in either Hacman or Philips, among other things, of a method of detecting a gas phase material that includes generating an alert based on the detection of the gas phase material, as recited in claims 1 and 10, or generating an alert based on the detection of the electrical conductivity of the electrically conductive film, as recited in claim 6.

In contrast, both Hacman and Philips recite methods of producing thin layers on bases (Hacman at Page 1, lines 10-11; Philips in English abstract supplied by Examiner), and not methods of detecting gas phase materials. Moreover, there is no teaching in either Hacman or Philips of an alert generated on the detection of the gas phase material or the detection of electrical conductivity of a conductive film. Thus, Hacman and Philips fail to anticipate claims 1, 6 and 10.

Claim 9

Applicant submits that claim 9, being dependent on independent claim 6 that is otherwise allowable for reasons set forth herein, is likewise allowable over the cited art.

Claims 12 and 17

Applicant has amended claims 12 and 17 to better describe the recited subject matter. Insofar as the rejection is applied to claims 12 and 17, Applicant respectfully traverses the rejection of the claims, as follows.

Applicant respectfully submits that Hacman and Philips fail to anticipate the subject matter of claims 12 and 17, as Hacman and Philips fail to teach each and every element set forth in the claims. For example, there is no teaching in either Hacman or Philips, among other things, of a sensor for detecting a gas phase material in an environment that includes a detector operatively connected to a first and second electrodes, where the detector generates an alert when a film of the gas phase material in the environment forms on the detection surface, as recited in claims 12 and 17. In contrast, both Hacman and Philips recite apparatus for producing thin layers

on bases (Hacman at Page 2, lines 8-19; Philips in English abstract supplied by Examiner), and not a sensor for detecting and alerting as to the formation of a film of gas phase material, as recited in Applicant's claims 12 and 17. Moreover, there is no teaching in either Hacman or Philips of a sensor that generates an alert based on the detection of the gas phase material or the detection of electrical conductivity of a conductive film. Thus, Hacman and Philips fail to anticipate claims 12 and 17.

Claims 15, 16, 19 and 20

Applicant submits that claims 15-16 and 19-20, being dependent on independent claims 12 and 17 that are otherwise allowable for reasons set forth herein, are likewise allowable over the cited art.

Reconsideration and withdrawal of the rejection of claims 1, 6, 9, 10, 12, 15-17, 19 and 20 under 35 U.S.C. §102(b) as being anticipated by Hacman or Philips is, accordingly, respectfully requested.

Rejections Under 35 U.S.C. §103(a)

Claims 2-5, 7, 8, 11, 13, 14 and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over GB 1,151,482 to Hacman (hereinafter "Hacman") or FR 1576658 to N.V. Philips (hereinafter "Philips"), and further in view of JP 2-293644 or JP 3-48748 to Arai (hereinafter "Arai").

Claims 2 and 3

Applicant respectfully traverses the rejection of claims 2 and 3. Applicant respectfully submits that a *prima facie* case of obviousness has not established in the rejection of claims 2 and 3, because the asserted suggestion or motivation to modify or combine the reference teachings is not supported by the documents themselves.

Hacman recites a method of producing thin layers on bases, where "the invention is

characterized in that the attaining of the predetermined temperature and accordingly the earliest moment for beginning the vapor deposition is ascertained by measuring continuously the electrical insulation resistance of a base not yet deposited upon while being heated." (page 1, lines 58-64). Hacman does not teach the gas phase materials taught in claims 2 and 3.

Philips recites depositing metal oxide films, where the deposition of the metal oxide films are monitored by measuring the resistance of similar layers deposited onto a nearby glass substrate. Philips does not teach the gas phase materials taught in claims 2 and 3.

Arai recites a sensor to detect the concentration of gas phase ruthenium tetraoxide. As the ruthenium tetraoxide deposits on the electrode surface there is a resulting weight increase of the electrode. This weight increase is converted into a change of resonance frequency of a quartz oscillator, from which the concentration of ruthenium tetraoxide is determined.

The cited documents, however, do not support the asserted suggestion or motivation to combine their teachings. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Hacman and Philips recite methods of producing thin layers or films on substrates. In contrast, Arai recites a sensor to detect the concentration of ruthenium tetraoxide. Arai neither teaches nor suggests an electrically conductive layer of ruthenium tetraoxide need be formed in order to detect its presence. Rather, Arai discloses that the concentration of ruthenium tetraoxide is detected from frequency changes of the sensor resulting from a weight increase on the sensor. Arai neither teaches nor suggests that a detectable weight increase of ruthenium tetraoxide on the recited sensor forms a conductive film.

Furthermore, the asserted motivation to combine/modify the teachings of Hacman or Philips (*i.e.*, "because of the ability to measure them conductometrically") does not find support in the references themselves. In fact, Arai teaches away from reliance on formation of conductive films for detection by teaching that one should rely on the high sensitivity provided by measuring changes in resonant frequency, and not in measuring conductivity of films.

In addition, Applicant submits that claims 2 and 3, being dependent on independent claim

1 that is otherwise allowable for reasons set forth herein, are likewise allowable over the cited art.

Claims 4 and 5

Applicant respectfully traverses the rejection of claims 4 and 5. Applicant respectfully submits that a *prima facie* case of obviousness has not established in the rejection of claims 4 and 5, as the cited documents, besides other things, fail to teach or suggest all the claim limitations of claim 4 and 5. For example, there is no teaching or suggestion in Hacman, Philips or Arai of a gas phase material comprising iridium, as recited in claim 4, or a gas phase material comprising rhodium, as recited in claim 5. Thus, the cited documents fail to teach or suggest all the subject matter recited in claims 4 and 5.

In addition, Applicant submits that claims 4 and 5, being dependent on independent claim 1 that is otherwise allowable for reasons set forth herein, are likewise allowable over the cited art.

Claims 7, 8 13, 14 and 18

Applicant submits that claims 7-8, 13-14 and 18, being dependent on independent claims 6, 12 and 17 that are otherwise allowable for reasons set forth herein, are likewise allowable over the cited art.

Claim 11

Applicant respectfully traverses the rejection of claim 11. Applicant respectfully submits that a *prima facie* case of obviousness has not established in the rejection of claim 11, because the asserted suggestion or motivation to modify or combine the reference teaching is not supported by the references themselves. Applicant repeats the argument presented above for claims 2 and 3 in support of this position. In addition, Applicant submits that claim 11, being dependent on independent claim 10 that is otherwise allowable for reasons set forth herein, is likewise allowable over the cited art.

Reconsideration and withdrawal of the rejection of claims 2-5, 7, 8, 11, 13, 14 and 18 under 37 C.F.R. §103(a) as being unpatentable over Hacman or Philips in view of Arai is, accordingly, respectfully requested.

Summary

It is respectfully submitted that the pending claims 1-20 are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicant's Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

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CERTIFICATE UNDER 37 CFR §1.8:

The undersigned hereby certifies that this paper is being deposited with the United States Postal Service as first class mail, in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on this 27th day of September, 2001.

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APPENDIX A - SPECIFICATION/CLAIM AMENDMENTS

INCLUDING NOTATIONS TO INDICATE CHANGES MADE

Serial No.: 09/388,286

Docket No.: 150.0101 0101

Amendments to the following are indicated by underlining what has been added and bracketing what has been deleted. Additionally, all amendments have been shaded.

In the Claims

For convenience, all pending claims are shown below.

1.(Amended) A method of detecting a gas phase material comprising:

providing a sensor comprising first and second electrodes, a detection surface extending between the first electrode and the second electrode, and a detector operatively connected to the first and second electrodes;

exposing the detection surface to the gas phase material, wherein an electrically conductive film of gas phase material forms on the detection surface between the first and second electrodes; [and]

detecting the gas phase material from a change in conductivity between the first and second electrodes with the detector; and

generating an alert based on the detection of the gas phase material.

2. A method according to claim 1, wherein the gas phase material comprises ruthenium.

3. A method according to claim 1, wherein the gas phase material comprises ruthenium tetraoxide.

4. A method according to claim 1, wherein the gas phase material comprises iridium.

5. A method according to claim 1, wherein the gas phase material comprises rhodium.

6.(Amended) A method of detecting a gas phase material comprising:

providing a sensor comprising first and second electrodes, a detection surface extending between the first electrode and the second electrode, and a detector operatively connected to the first and second electrodes, wherein the detection surface is not electrically conductive;

exposing the sensor to the gas phase material, wherein an electrically conductive film of the gas phase material forms on the detection surface between the first and second electrodes; [and]

detecting electrical conductivity of the electrically conductive film between the first and second electrodes with the detector; and

generating an alert based on the detection of the electrical conductivity of the electrically conductive film.

7. A method according to claim 6, wherein the detection surface comprises a polymer.

8. A method according to claim 6, wherein the detection surface comprises polypropylene.

9. A method according to claim 6, wherein the detection surface comprises glass.

10.(Amended) A method of detecting a gas phase material comprising:

providing a sensor comprising first and second electrodes, a detection surface extending between the first electrode and the second electrode, and a detector operatively connected to the first and second electrodes;

heating the detection surface above ambient temperature;

exposing the detection surface to the gas phase material, wherein an electrically conductive film of the gas phase material forms on the detection surface between the first and second electrodes; [and]

detecting the gas phase material from a change in conductivity between the first and second electrodes with the detector; and

generating an alert based on the detection of the gas phase material.

11. A method according to claim 10, wherein the gas phase material comprises ruthenium, and further wherein heating the detection surface comprises heating the detection surface up to about 100°C or less.

12.(Amended) A sensor for detecting a gas phase material in an environment, the detector comprising:

first and second electrodes;

a detection surface extending between the first electrode and the second electrode; and

a detector operatively connected to the first and second electrodes, where the detector generates an alert when a film of the gas phase material in the environment forms on the detection surface.

13. A sensor according to claim 12, wherein the detection surface comprises a polymer.

14. A sensor according to claim 12, wherein the detection surface comprises polypropylene.

15. A sensor according to claim 12, wherein the detection surface comprises glass.

16. A sensor according to claim 12, wherein the detector comprises an electronic circuit capable of detecting a change in electrical conductivity between the first and second electrodes.

17.(Amended) A sensor for detecting a gas phase material in an environment, the detector comprising:

first and second electrodes;

a detection surface extending between the first electrode and the second electrode;

a heater capable of providing thermal energy to the detection surface; and

a detector operatively connected to the first and second electrodes, where the detector generates an alert when a film of the gas phase material in the environment forms on the detection surface.

18. A sensor according to claim 17, wherein the detection surface comprises a polymer.

19. A sensor according to claim 17, wherein the detection surface comprises glass.

20. A sensor according to claim 12, wherein the detector comprises an electronic circuit capable of detecting a change in electrical conductivity between the first and second electrodes.